

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 25. Canceled.

26. (Previously presented) The process according to claim 32 wherein the Al₂O₃ membrane is formed from an Al₂O₃ slurry.

27. - 30. Canceled.

32. (Currently amended) A process for manufacturing a capacitive vacuum measuring cell, comprising the following steps:

- a. manufacturing a first Al₂O₃ housing plate (1) with outer and inner opposing surfaces and an outer periphery;
- b. forming an electrically conductive surface (7) on the inner surface of the first Al₂O₃ housing plate to provide a first electrode of the capacitive vacuum measuring cell;
- c. manufacturing a second Al₂O₃ housing plate (4) with an outer periphery;
- d. forming an opening in the second Al₂O₃ housing plate (4) extending therethrough;
- e. sealing a connecting port (5) about the opening formed in the second Al₂O₃ housing plate (4);
- f. manufacturing of an Al₂O₃ membrane (2) having first and second opposing surfaces and an outer periphery, the membrane having a thickness within the range of 10

μm to 250 μm;

- g. forming an electrically conductive film (7) on the first surface of the Al₂O₃ membrane (2) to provide a second electrode of the capacitive vacuum measuring cell;
- h. disposing the Al₂O₃ membrane (2) between the inner surface of the first Al₂O₃ housing plate (1) and the second Al₂O₃ housing plate (4), with the first surface of the Al₂O₃ membrane (2) facing the inner surface of the first Al₂O₃ housing plate (1), and spacing the first surface of the Al₂O₃ membrane (2) at a predetermined distance from the inner surface of the first Al₂O₃ housing plate (1) to define a reference vacuum chamber (25) therebetween, and spacing the second Al₂O₃ housing plate (4) at a predetermined distance from the second surface of the Al₂O₃ membrane (2) to define a measurement vacuum chamber (26) therebetween; and
 - i. sealing the outer periphery of the Al₂O₃ membrane (2) to the outer peripheries of the first Al₂O₃ housing plate (1) and the second Al₂O₃ housing plate (4) to form a vacuum tight seal therebetween.

33. (Previously presented) The process recited by claim 32 wherein the step of manufacturing the Al₂O₃ membrane (2) includes the steps of:

- a. forming the Al₂O₃ membrane (2) from an Al₂O₃ slurry;
- b. heating the membrane in a furnace a first time to sinter the membrane, with subsequent cool-down;
- c. heating the membrane a second time for smoothing the membrane, with subsequent cool down.

34. (Previously presented) The process recited by claim 33 wherein the step of forming the Al₂O₃ slurry includes the steps of forming a ribbon-shaped Al₂O₃ green body upon a carrier foil, and subsequently pulling the ribbon-shaped Al₂O₃ green body from the carrier foil.

35. (Previously presented) The process recited by claim 32 including the further steps of forming a first electrical, vacuum-tight feedthrough (6) through first Al₂O₃ housing plate (1), and coupling said first electrical, vacuum-tight feedthrough (6) to the electrically conductive surface (7) formed on the inner surface of the first Al₂O₃ housing plate to effect electrical coupling thereto.

36. (Previously presented) The process recited by claim 34 including the further steps of forming a second electrical, vacuum-tight feedthrough (6) through first Al₂O₃ housing plate (1), and coupling said second electrical, vacuum-tight feedthrough (6) to the electrically conductive surface (7) formed on the first surface of the Al₂O₃ membrane (2) to effect electrical coupling thereto.

37. (Previously presented) The process recited by claim 32 including the further steps of forming a getter opening (13/14) within the first Al₂O₃ housing plate (1) communicating with reference vacuum chamber (25), disposing a getter (10) within said getter opening (13/14), pumping down reference vacuum chamber (25) to evacuate matter therefrom, and activating the getter (10) to further lower the pressure within reference vacuum chamber (25).

38. (Previously presented) The process recited by claim 37 including the further steps of

extending the getter opening (13/14) through first Al₂O₃ housing plate (1), applying a vacuum to getter opening (13/14) to pump down the reference vacuum chamber (25), and subsequently applying heat to a cover (8) overlying getter opening (13/14) to form a vacuum-tight seal between the cover (8) and the first Al₂O₃ housing plate (1) and simultaneously activating the getter (10).

39. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the Al₂O₃ membrane to the outer peripheries of the first Al₂O₃ housing plate and the second Al₂O₃ housing plate includes the steps of:

 applying a glass paste to the outer periphery of the Al₂O₃ membrane;
 disposing the Al₂O₃ membrane between the outer peripheries of first Al₂O₃ housing plate and the second Al₂O₃ housing plate;
 heating the Al₂O₃ membrane and the first and second Al₂O₃ housing plates to a temperature above 330 degrees Centigrade to sealingly join the outer periphery of the Al₂O₃ membrane to the outer peripheries of the first Al₂O₃ housing plate and the second Al₂O₃ housing plate.

40. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the Al₂O₃ membrane to the outer peripheries of the first Al₂O₃ housing plate and the second Al₂O₃ housing plate includes the steps of:

 disposing the Al₂O₃ membrane between the outer peripheries of first Al₂O₃ housing plate and the second Al₂O₃ housing plate;
 applying a solder to the joint between the outer periphery of the Al₂O₃ membrane and the

outer peripheries of the first Al₂O₃ housing plate and the second Al₂O₃ housing plate; and
heating the Al₂O₃ membrane and the first and second Al₂O₃ housing plates to a
temperature above 330 degrees Centigrade to sealingly join the outer periphery of the Al₂O₃
membrane to the outer peripheries of the first Al₂O₃ housing plate and the second Al₂O₃ housing
plate.

41. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of
the Al₂O₃ membrane to the outer peripheries of the first Al₂O₃ housing plate and the second
Al₂O₃ housing plate includes the steps of:

disposing the Al₂O₃ membrane between the outer peripheries of first Al₂O₃ housing plate
and the second Al₂O₃ housing plate;
welding the outer periphery of the Al₂O₃ membrane to the outer peripheries of the first
Al₂O₃ housing plate and the second Al₂O₃ housing plate at a welding temperature above 300
degrees Centigrade.

42. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of
the Al₂O₃ membrane to the outer peripheries of the first Al₂O₃ housing plate and the second
Al₂O₃ housing plate includes the steps of:

disposing the Al₂O₃ membrane between the outer peripheries of first Al₂O₃ housing plate
and the second Al₂O₃ housing plate;
brazing the outer periphery of the Al₂O₃ membrane to the outer peripheries of the first
Al₂O₃ housing plate and the second Al₂O₃ housing plate with a corrosion resistant brazing
material at a temperature above 300 degrees Centigrade.

43. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the Al₂O₃ membrane to the outer peripheries of the first Al₂O₃ housing plate and the second Al₂O₃ housing plate includes the steps of:

disposing the Al₂O₃ membrane between the outer peripheries of first Al₂O₃ housing plate and the second Al₂O₃ housing plate;

diffusion bonding the outer periphery of the Al₂O₃ membrane to the outer peripheries of the first Al₂O₃ housing plate and the second Al₂O₃ housing plate at a temperature above 300 degrees Centigrade.

44. (New) The process recited by claim 32 wherein the membrane has a thickness within the range of 10 µm to 120 µm.

45. (New) The process recited by claim 32 wherein the membrane has a diameter within the range of 5 mm to 80 mm.

46. (New) The process recited by claim 32 wherein the membrane has a diameter within the range of 5 mm to 40 mm.

47. (New) The process recited by claim 32 wherein the membrane material has a grain size less than 20 µm.

48. (New) The process recited by claim 32 wherein the membrane material has a grain size less than 10 µm.